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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,862	02/19/2002	Max Roth	032553-021	2349

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EXAMINER	
DUONG, THO V	
ART UNIT	**PAPER NUMBER**
3743	

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/049,862	Applicant(s) ROTH, MAX	
	Examiner Tho v Duong	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-6,8-15,17-19 and 21-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *27* is/are allowed.

6)☒ Claim(s) *2-5,8,10,11,13-15,17-19,21-22,24-26 and 28-29* is/are rejected.

7)☒ Claim(s) *6,9,12 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt of applicant amendment filed 12/3/2003 is acknowledged. Claims 2-6,8-15,17-19 and 21-29 are now pending.

The indicated allowability of claim 15 is withdrawn in view of the newly discovered reference(s) to Middleton. Rejections based on the newly cited reference(s) follow. Any inconvenient is regretted.

Applicant's arguments regarding the previous 112th rejections and the objection to the drawing are moot in view of the amended specification and claims.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed subject matter of "with spacing on all sides from an edge thereof" renders the scope of the claim indefinite since it is not clear if applicant is claiming spacing from

an edge of the indentations or an edge of the connections. Therefore, the limitation should be revised to set forth clearly the intended invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Middleton (US 3,781,971). Middleton discloses (figures 1-7 and column 3, lines 15-22) a compression-molding sheet-metal joining method for mutual punctate fastening of two parallel walls (1,3) that enclose a flow-through chamber which will be formed at area (2) of a heat exchanger. The compression-molding method is interpreted as a method of joining two sheets by using a die and a punch apparatus that deforms the sheet material.

Claims 4,15 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi Toshio (JP 356091942A). Takahashi discloses a compression-molding sheet metal joining method for producing a solar panel of a water heater system comprising joining two pre-shaped parallel walls (4) facing one another to create a hollow body (5) having a flow through

chamber for a heat exchanger medium; and compression molding the walls (using die and punch apparatus (P1,P2)) through which the medium can flow, the walls (4) being punctate fastened to one another at a plurality of connecting points (7) inside a surface between edges (8) of the hollow body, the two walls (4) made to mesh with one another inside the surface between the edges of the hollow body by material deformation at (7).

Claims 8,10,13,14 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Feind et al. (US 6,378,604). Feind discloses (figure 12,14 and 19-21) a heat exchanger comprising two joined together walls (46,48) forming a flow-through chamber for a heat transfer medium, the walls being joined together at a plurality of connecting points (40,49) inside a surface between edges of the heat exchanger, wherein the walls are made to mesh with one another at the connecting points (40,49) inside the surface between the edges of the heat exchanger and are fastened to one another by means of circular denticulation (40,49). Feind further discloses that the denticulation (40,49) are disposed in at least one of rows and in a rectangular grid pattern. As regarding claim 14, Feind further discloses (column 6, line 12-24) that the denticulations (40) are disposed inside an appropriate circular indentation of the walls (raised donut shaped area). As regarding the method limitations such as "the denticulations are produced by an upsetting-pressing process" and "compression molded annular denticulation", the method of forming the device is not germane to the issue of patentability of the device itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process

claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, the denticulations and joint structure of the product in the product-by process claim is the same as the joint structure and the denticulations of the prior art (See figure 21 in prior art and figure 9 of the present invention). Therefore, these method limitations have not been given any significant patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Lee (US 4,292,958). Takahashi substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the hollow body is exposed to an internal pressure that is elevated compared to an external pressure. Lee discloses (column 3, lines 11-21) a solar panel of a water heater system that has flowing chamber being exposed to an internal pressure between 130 –150 psi to enlarge the cross area of the chamber to enhance the heat transfer efficiency of the solar panel and to test the structural integrity of the assembly under pressure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Lee's teaching in Takahashi's device to enlarge the cross area of the flowing

chamber to enhance the heat transfer efficiency of the solar panel and to test the structural integrity of the assembly under pressure.

Claims 2,8,10, 25 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi Toshio (JP 356091942A) in view of applicants' admitted prior art (AAPA). Takahashi discloses a heat exchanger comprising two joined together walls (4) forming a flow-through chamber for a heat transfer medium, the walls being joined together at a plurality of connecting points (6) inside a surface between edges of the heat exchanger, wherein the walls (4) mesh with one another at the connecting points inside the surface between the edges of the heat exchanger and are punctate fastened to one another at (7) along two opposite edges of the heat exchanger by compression molded denticulations (method of using die and punch (P1,P2)). As regarding claim 28 and 29, the denticulations (7) are located at an indentation (6) in the surface. Takahashi does not disclose that the compression molding is an annular compression molding which form an annular denticulation on the surface of the wall with a diameter from 3 to 6mm. Applicant's admitted prior art discloses (figure 1 and page 4 in the specification) that it is known in the art that compression-molded connections (11) are used to joined metal sheets and the standard compression-molded connection is circular and is offered in diameter sizes of 3,4,5,6,8,10 and 12 mm for the purpose of joining two metal sheets together without using welding method. It would have been obvious to one having ordinary skill in the art at the time invention was made to employ the standard compression-molded connections as taught by AAPA in Takahashi's heat exchanger for the purpose of joining two metal sheets together without using welding method. It is an official note that the compression molded connections is also known by reference Sawdon (US 5,581,860).

Claims 11 and 21-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi, the applicant admitted prior art (AAPA) as applied to claims 24 and 25 above, and further in view of Ortega (US 4,248,210). Takahashi and AAPA substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the sheets are copper with a thickness of 0.3 to 0.8 mm. Ortega discloses (figure 3, column 1, lines 33-48 and column 5, lines 50-54) a heat transfer component comprising two thin sheets (56,58) forming a working fluid channel wherein the sheets (56,58) are made out of copper with thickness in range of 0.005 – 0.025 inches (0.127-0.63 mm) to improve heat transfer rate of the heat transfer component and to maximize the material saving due to the fact that copper is very high thermal conductive material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Ortega's teaching in Takahashi's heat exchanger to improve heat transfer rate and maximize the material saving.

Claims 17-19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 4,292,958) in view of Takahashi and applicant admitted prior art (AAPA). Lee discloses (figures 5-11 and column 3, lines 32-49) a solar water heater construction kit comprising a plurality of heat exchangers (10); and plug connectors (26,34) for the connections of the heat exchanger (10); each heat exchanger (10) having a plurality of flat tube members (12) forming flow-through chambers for a heat transfer medium. Lee does not disclose that the tubular member (12) is made of two sheets with connecting points formed as compression molded annular denticulations. Takahashi discloses a heat exchanger comprising two joined together walls (4) forming a flow-through chamber for a heat transfer medium, the walls being joined together at a plurality of connecting points (6) inside a surface between edges of the heat

exchanger, wherein the walls (4) mesh with one another at the connecting points inside the surface between the edges of the heat exchanger and are punctate fastened to one another at (7) by compression molded denticulations (method of using die and punch (P1,P2)) for the purpose of eliminating strains owing to welding and uncertainty of working by joining the sealing parts between the heat transfer medium flow parts and end edge parts of two sheets. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Takahashi's teaching in Lee's water heater to eliminate strain owing to welding and uncertainty of working by joining the sealing parts between the heat transfer medium flow parts and end edge parts of two sheets. However, both Lee and Takahashi do not disclose that the compression molded joints are annular, which forms annular denticulations on the surface of the wall. Applicant's admitted prior art discloses (figure 1 and page 4 in the specification) that it is known in the art that compression-molded connections (11) are used to joined metal sheets and the standard compression-molded connection is circular and is offered in diameter sizes of 3,4,5,6,8,10 and 12 mm for the purpose of joining two metal sheets together without using welding method. It would have been obvious to one having ordinary skill in the art at the time invention was made to employ the standard compression-molded connections as taught by AAPA in the combination device of Lee and Takahashi for the purpose of joining two metal sheets together without using welding method. As regarding claim 5, Lee further discloses (column 3, lines 11-21) that the flowing chamber of the flat tubular members (12) are exposed to an internal pressure between 130 –150 psi to enlarge the cross area of the chamber to enhance the heat transfer efficiency of water heater and to test the structural integrity of the assembly

under pressure. As regarding claim 18, it is well known in the art that a water heater system comprises a pump to move the water within the system. (See US 4,191,329).

Allowable Subject Matter

Claim 6,9 and 12-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 27 is allowed.

Conclusion

The non-application of art against claim 3 should not be construed as an indication that the claims contain allowable subject matter.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gunter (US 4,531,279) discloses a method of making a leak proof joint.

Middleton (US 4,093,024) discloses a heat exchanger having sheets of metal combined to form flow channel.

Sawdon (US 5,581,860) discloses compression molding joints between two sheets of metal.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

TD

February 21, 2004

Tho Duong

Patent Examiner..